

FISHES OF THE GENUS *NEMACHEILUS* (BLEEKER 1863) IN KERALA WITH DESCRIPTION OF A NEW SPECIES, *NEMACHEILUS PERIYARENSIS*¹

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Fishes of the genus *Nemacheilus* (Bleeker 1863) are represented by 10 species in Kerala. During fish species inventory surveys carried out in Periyar lake, three specimens of this genus collected were different in morpho-meristic characters and colour pattern from the species hitherto described. The new species is named *Nemacheilus periyarensis* after the water body from which it was collected. A key to the species of genus *Nemacheilus* reported from Kerala is given with a detailed description of the new species.

Key words: *Nemacheilus periyarensis* sp. nov., Periyar lake, Kerala

INTRODUCTION

The genus *Nemacheilus* (Bleeker) consists of a group of species that are remarkably similar in general morphology. Since they lack the spines, scutes, various other processes, and features of taxonomical value, species under *Nemacheilus* (Bleeker) are the most difficult to distinguish and differentiate (Menon 1987). Nemacheiline species from India were described first by Hamilton-Buchanan (1822). Subsequently, McClelland (1839); Günther (1868); Day (1878); Hora (1935) and Menon (1987) described a number of new species. No attempt has so far been made to revise the Nemacheilinae species inhabiting Indian waters, barring the partial revision of the genus from Eastern Himalayas and the revision of the Cobitoid fishes by Menon (1987). More than 450 species have been described under the subfamily Nemacheilinae (Kottelat 1990). These are distributed in South China, Southeast Asia, Baluchistan, Western Iran and Northeast Africa. Seventy-nine Nemacheiline species under 2 genera, *Nemacheilus* and *Triplophysa* are known from the Indian waters (Menon 1987). Nine subgenera under *Nemacheilus* and ten subgenera under *Triplophysa* have so far been described. Genus *Nemacheilus* includes the subgenera *Schistura* McClelland, *Acanthocobitis* Peters, *Nemacheilus* Van Hesselt, *Nemachilichthys* Day, *Mesonemacheilus* Benarescu and Nalbant, *Infundibulatus* subgenera nov; *Petruichthys* subgenera nov; *Aborichthys* Chaudhuri and *Indoreonectes* Rita and Benarescu. In *Schistura*, 11 species have been recognized, while the subgenus *Petruichthys* and *Nemachilichthys* have only one species each, *Nemacheilus brevis* and *Nemacheilus ruppelli* respectively. Ten species have so far been described under the genus *Nemacheilus* in Kerala waters. (Jayaram 1999) and a few species described earlier have been treated as synonyms of these 10 species (Menon 1999). While investigating the fish fauna of Periyar

lake, one of the 18 biodiversity hot spots of India, the authors came across three specimens whose morpho-meristic features and colouration were found to be totally different from those of the species hitherto described. A new species has therefore been erected whose description is given below. A number of species have been reported from Periyar lake by Raj (1941); Hora (1941); Menon and Jacob (1996); Zacharias and Minimol (1999) and Gopi (2001). A key to the species recorded under the genus *Nemacheilus* in Kerala is also given.

MATERIAL AND METHODS

The type locality of the new species is Thannikkudy, Periyar Lake, Kerala, south India between 9° 28' 91" N and 77° 16' 44" E. Morphometric measurements were recorded with dial callipers to the nearest millimetre and expressed as percent of standard length. Meristics were counted following Talwar and Jhingran (1991).

Nemacheilus periyarensis sp. nov. (Fig. 1)

Holotype: Deposited in ZSI Calicut, No. ZSI (WGRS) CLT.V/F 13030, 85.2 mm TL, Periyar Lake, 18.ii.2002.

Paratypes: 2 ex. Deposited in School of Industrial Fisheries Museum. 80.6-82.0 mm TL, Periyar Lake, 18.ii.2002.

Diagnosis: An elongated and slender species, dorsal fin with 9 branched rays, lateral line incomplete, ends above the anal fin, body with irregular network of bands and blotches, dorsal and caudal fins with 4 or more rows of dark bands and a black ocellus at the lower angle of the caudal peduncle, very near to the caudal origin.

Description: Based on 3 specimens collected from Thannikkudy, Periyar lake, ranging from 67.38 to 69.58 mm SL.

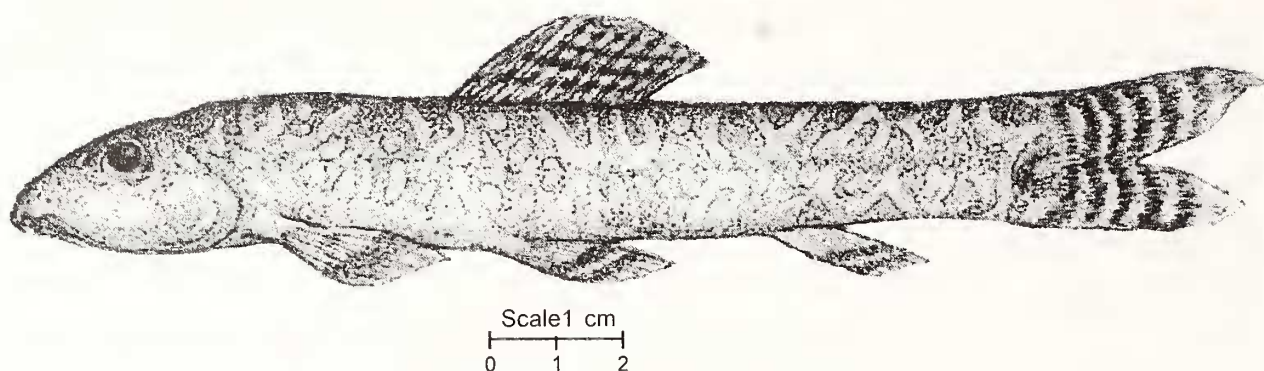


Fig. 1: *Nemacheilus periyarensis* sp. nov.

DI, 9; PI, 9; VI, 6; AI, 5; C19.

Dorsal profile slightly arched, compared to the ventral. Lateral line ending above the anal origin. Eyes moderately large, nostrils close to each other, head longer than broad, mouth more or less semicircular, subterminal with the upper jaw slightly prolonged. Barbels well developed, 3 pairs, depth of the body 12.5-13.69% (13.059) in SL, length of the head 17.73-22.87% (20.3) of SL, snout length less than interorbital width, the latter less than the postorbital length. Eyes not visible from ventral side of the head, diameter 19.88-26.33% (23.10) of head length, shorter than the interorbital width, 38.4-72.5% (55.45) of the latter. Anterior nostrils flap-like. Mouth slightly pointed rather than semicircular, lips fleshy, lower lip interrupted in the middle. Barbels well developed, broader at their bases and with pointed tips, outer rostral barbels longer than inner ones and are equal to or larger than the maxillary barbels, not extending to the anterior border of eye. Caudal peduncle length 10.34-13.56% (11.95) in SL, least depth 65.23-79.83% (72.53) in head length. (Mean value in parentheses)

Squamation: Lateral line incomplete, ending above the origin of the anal fin or slightly behind it, and followed by a shallow groove, which becomes deeper as it reaches the caudal peduncle. Scales small, imbricate, covering the whole body except ventral profile between pectoral and pelvic fins.

Fins: Dorsal fin inserted closer to snout than to caudal. Its base larger, forming 63.97-84.74% of the height. Height 89.18% in head length. Pectorals smaller than head length, 83.72% in head length. Pelvic fins smaller than head and pectoral fins, length 70.92% in head length and 77.77% in pectoral fin length. Ventral not reaching anal fins and the latter not reaching the caudal fin. Distance between pectoral and ventral is 26.32% in SL. Distance between ventral and anal fins 24.57-30.2% in SL. Pre-anal distance 70.11%-78.6% in SL, pre-dorsal distance smaller, 43-48% in SL. Pre-ventral

distance 4.59%-5.01% in SL, pre-pectoral distance 19.49-25.20% in SL. Caudal forked.

Colouration: Ground colour light brown with irregularly descending narrow yellow bands, which sometimes coalesce to form reticular networks. Irregular yellow spots or bands dispersed between them. Bands also arise from the ventral side towards the lateral line. The pattern of colouration extends on to the head and snout region. Dorsal fin marked with 4 dark bands, while caudal fin has 5 narrow dark bands. Bands are also seen on the paired fins. Pectoral fins are either with dusky rays or with well-distinguished dark band. Ventral fins have two narrow dark coloured bands. Anal fin also with two dark narrow bands. Dark ocellus at the lower angle of the caudal peduncle, close to the origin of caudal rays.

Distribution: Thannikkudy in Periyar lake, Kerala, South India.

Etymology: Named after the water body from where the specimens were collected.

Remarks: The new species, *Nemacheilus periyarensis* shows close resemblance to *Nemacheilus pulchellus* (Day) reported from North India in its colouration and body characteristics. However, the new species can easily be distinguished from *Nemacheilus pulchellus* by the presence of 9 branched rays on the dorsal fin against 10 branched rays reported in the latter. Further, unlike in *N. pulchellus*, only the lower lip is interrupted in the middle and the lateral line is not complete in the new species. The new species also shows similarity with *Nemacheilus petrubanarescui* (Menon 1984) in colour pattern and ratio of body depth to standard length. However, the dorsal fin is not inserted equidistantly between the snout and caudal fin in *Nemacheilus periyarensis*. Also, in the former, the dorsal fin has only 8 rays. The new species described is compared with closely related species, the results are given in Table 1.

NEW DESCRIPTIONS

Table 1: Comparison of *Nemacheilus periyarensis* sp. nov. with closely related species

Character	<i>N. periyarensis</i>	<i>N. pulchellus</i>	<i>N. guentheri</i>	<i>N. petrubanarescui</i>	<i>N. triangularis</i>
No. of rays on the dorsal fin	9	10	8	8	8
Insertion of dorsal fin	Closer to the snout than to the caudal	Equidistant or slightly closer to the snout	Equidistant between the snout and caudal fin	Equidistant between the snout and caudal fin	Equidistant between the snout and caudal fin
No. of barbels	3 pairs	3 pairs	3 pairs	3 pairs	3 pairs
Colour pattern on body	Bands descending from dorsal to ventral side, oblique, forming network. Yellow oblique spots dispersed	Yellow spots and bands between the vertical bands	2-3 rows of yellow spots on the body, black edged	7-8 saddle shaped bands which are anteriorly broken into a number of narrow bands	Varies considerably with age. Yellow 'Y'-shaped bands
Bands on fins	4 rows of bands on dorsal, 5 rows on caudal, 2 rows on ventral and anal, single on pectoral	Dorsal fin with two dark bands	3-4 rows of spots on dorsal!	A row of spots on dorsal, two dark bands on caudal	Dorsal and caudal with two bands each, anal and pelvic fins with one each
Placement of vent	Closer to the anal fin; and the distance between the anal fin origin to the anal opening forms 18.78% in the distance between the ventral fin origin and anal fin origin	Closer to the anal and the distance between the anal fin origin to the anal opening forms 16.17% in the distance between the ventral fin origin and anal fin origin	Closer to the anal and the distance between the anal fin origin to the anal opening forms 18.55% in the distance between the ventral fin origin and anal fin origin	Closer to the anal and the distance between the anal fin origin to the anal opening forms 29.8% in the distance between the ventral fin origin and anal fin origin	Closer to the anal and the distance between the anal fin origin to the anal opening forms 23.66% in the distance between the ventral fin origin and anal fin origin
Lateral line	Incomplete, ending at the origin of anal fin	Complete	Incomplete, ending above the anal fin	Incomplete, ending at the base of anal fin	Complete

KEY TO THE SPECIES OF *NEMACHEILUS* (BLEEKER 1863)
REPORTED FROM FRESHWATERS OF KERALA

- 1. Pair of well developed nasal barbels 2
- No well developed nasal barbels 3
- 2. Body marked with well-defined and regular cross bars
..... *Nemacheilus evezardi*
- Body marked with narrow, small bars that are irregularly dispersed *Nemacheilus keralensis*
- 3. Body marked by series of vertical bars 4
- Body not marked with a series of vertical bars 5
- 4. Caudal emarginate, lateral line ending in front of dorsal fin
..... *Nemacheilus denisonii*
- Caudal forked, lateral line complete, body with vertical bars and black spots *Nemacheilus semiarmatus*
- 5. Body with moniliform black lateral band, seven branched rays on dorsal fin *Nemacheilus monilis*
- Body marked with irregular net of dark brownish and whitish yellow bars, a medium sized small dark bar at base of caudal fin 6
- 6. Dorsal fin with 9 branched rays, lateral line incomplete
..... *Nemacheilus periyarensis*

- Dorsal fin with 8 branched rays, lateral line complete or incomplete 7
- 7. Body marked with 2 or 3 rows of large yellow spots edged with black, lateral line incomplete... *Nemacheilus guentheri*
- Body with oblique bands 8
- 8. Body with Y-shaped bands *Nemacheilus triangularis*
- Body with varying number of wavy bands which sometimes coalesce to form reticulate networks 9
- 9. Saddle-shaped 7-8 black bands, sides with varying number of bands, broken up into narrow bands anteriorly
..... *Nemacheilus petrubanarescui*
- Body with irregular dark blotches on back, sides with reticulation of dark blotches and wavy bands
..... *Nemacheilus menonii*

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NEW DESCRIPTIONS

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